34

FEEBATE ON PURCHASE OF NEW CAR

Definition:

This TCM encourages consumers to purchase new cars with higher efficiency characteristics. Specifically, it would evaluate the EPA test case of placing a fee on the purchase of vehicles with poor MPG, with a maximum of $1364 on vehicles attaining no more than 21 mpg, and a maximum rebate of $395 on 45 mpg vehicles.

Upon further discussion, the definition of this TCM has been revised to reflect a feebate schedule that induces emissions improvements rather than MPG. Indeed, vehicles with higher fuel economy may well produce higher emissions.

Travel and Emissions Analysis:

The feebate schedule is the same as that used by EPA in their 1991 study:

MPG	Fee/(Rebate)	MPG	Fee/Rebate
45	$(395)	31	$472
43	(286)	29	621
41	(173)	27	781
39	(56)	25	960
37	55	23	1154
35	193	21	1364
33	329		

Source: Meeting Mobility and Air Quality Goals: Strategies that Work (EPA, Office of Policy Analysis, January 1993)

Assume that the fee structure will be linked to emissions instead of MPG. The fee system applied to emissions is estimated to produce an improvement in average MPG for current model year cars from 27 in 1991 to 33 in 2000, an improvement of 22.2% This translates to a 2.2% per year improvement; we assume the same improvement would translate to emissions.

Thus: were this system to be instituted in 1995, then 1995 model year cars would be 2.2% cleaner than they would have been otherwise, and 1996 model year cars would be 4.4% cleaner. To evaluate impact on regional emissions, adjust the emissions factors in MOBILE to reflect these improvements for this portion of the stock.

Cost Methodology:

This measure provides a rebate to the purchase of new cars that are lower in emissions than the regular new car standard. The new cars that produce higher levels of emissions would be charged a fee (tax). The program would be established to pay for itself except for the administration fee. This fee was estimated to be $500,000 annually.

35

COMPREHENSIVE GAS TAX

Definition:

This TCM is defined as a comprehensive regional gas tax of $0.84 per gallon.

Travel and Emissions Analysis:

Evaluation was made with the DVRPC regional mode choice model applied to both work and non-work travel. The cost increase per gallon was translated to a cost per mile through assumption of a 21 mpg per average vehicle (then deflated by 0.58 time inflation factor).

Revised trip tables will be run through network assignment and then PPAQ for emissions estimation.

Cost Methodology:

This measure would increase gasoline taxes by $0.84 per gallon. The number of gallons consumed was calculated assuming a 21 miles per gallon average vehicle fleet rate and proportioned from the VMT tax of 4 cents per mile. An administration cost of $750,000 was assumed for collection of additional tax and auditing the tax collection program.

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VEHICLE MILES TRAVELLED (VMT) TAX

Definition:

This TCM would impose a 4 cents tax per mile on all Vehicle Miles of Travel (VMT). The effect should be to decrease VMT by encouraging a shift to higher-occupancy modes, reducing the frequency and distance of travel, and possibly even causing a shift to more efficient vehicles.

Travel and Emissions Analysis:

This analysis will be performed in the same manner as the gas tax, through the DVRPC mode choice model, followed by assignment and PPAQ emissions model.

Auto operating cost was increased by 4 cents per mile in the travel skims, and the mode choice model run on such a difference in cost for both work and non-work travel. Revised trip tables were run through assignment and PPAQ.

Cost Methodology:

This measure would impose a four cents per mile tax on all vehicle miles travelled. The administration costs were assumed to be $1,000,000 to collect the vehicle mileage at the time of state inspection and to bill the owner.

37

FACILITY PRICING

Definition:

This TCM would double the current tolls for all vehicles getting both on and off the PA Turnpike (I-276) between the Route 100 and Route 1 interchanges, and the Northeast Extension (PA 9) from its origin to the interchange at Quakertown, during the AM peak period (6:30 to 9:00) and the PM peak period (4:00 to 6:30). (The measure would be complementary to the Cross-County Metro, if and when it is built.)

Travel and Emissions Analysis:

This measure was analyzed by DVRPC by adjusting the toll links in question to have a greater impedance and re-running the assignment and emissions models. The links were identified, and the assignment was re-run without re-running the mode choice/distribution model (thus, no effect on VMT).

Cost Methodology:

This measure would result in increased revenues from higher SOV tolls, which would then be used to cover reduced tolls for HOV users plus increased administrative costs. It is assumed that the toll structure will be adjusted to just cover the costs/subsidy increases, thus the program will operate *revenue neutral*.

emissions reduction potential and the highest cost-effectiveness fall into the upper left corner of the table, while the ones with the least emissions reduction potential and the lowest cost-effectiveness fall into the lower right corner.

-BASED EL	CHANGE IN TOTAL TRAVEL		CHANGE IN TOTAL VMT	CHANGE IN EMISSIONS		
sit Trips Change	Vehicle Trips % Change	Transit Trips % Change	Veh-Miles % Change	kg of VOC % Change	kg of CO % Change	kg of NO_x % Change
,000 (a)	10,092,000 (a)	764,000 (a)	71,701,500 (b,c)	79,500 (b)	510,500 (b)	111,000 (b)
Not pplicable	Not Applicable	Not Applicable	Not Applicable	-161 -0.2	-5,230 -1.0	-567 -0.5
TRANSIT OPERATIONS						
1,267 0.3	-1,255 -0.0	1,998 0.3	-10,360 -0.0	-10 -0.0	-61 -0.0	-18 -0.0
171 0.0	-278 -0.0	364 0.0	-1,360 -0.0	-2 -0.0	-10 -0.0	-3 -0.0
466 0.1	-505 -0.0	731 0.1	-14,752 -0.0	-14 -0.0	-87 -0.0	-26 -0.0
5,505 1.2	-9,497 -0.1	13,164 1.7	-73,488 -0.1	-84 -0.1	-506 -0.1	-118 -0.1
9,696 2.1	-16,762 -0.2	23,473 3.1	-144,016 -0.2	-178 -0.2	-977 -0.2	-238 -0.2
23,409 5.1	-42,071 -0.4	58,884 7.7	-362,432 -0.5	-425 -0.5	-2,460 -0.5	-622 -0.6
6,161 1.4	-7,248 -0.1	9,216 1.2	-54,000 -0.1	-61 -0.1	-393 -0.1	-92 -0.1